

TABLE 3.—Maximum free air wind velocities, (m. p. s.), for different sections of the United States based on pilot-balloon observations during October 1941

Section	Surface to 2,500 meters (m. s. l.)					Between 2,500 and 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast <sup>1</sup>	42.6	WSW	830	5	Buffalo, N. Y.	50.4	NW	3,130	23	Kylertown, Pa.	70.4	WNW	8,820	17	Albany, N. Y.
East-Central <sup>2</sup>	36.2	SW	1,740	8	Portland, Maine.	55.4	NW	4,400	10	Huntington, W. Va.	70.0	W	11,570	28	Greensboro, N. C.
South-Central <sup>3</sup>	26.3	SW	2,420	27	Huntington, W. Va.	28.2	NW	3,940	10	Spartanburg, S. C.	55.2	W	20,500	20	Miami, Fla.
North-Central <sup>4</sup>	39.4	W	1,650	27	Atlanta, Ga.	63.2	WSW	3,170	7	Muskegon, Mich.	74.5	WNW	11,560	10	Minneapolis, Minn.
Central <sup>5</sup>	36.6	WSW	2,100	7	Green Bay, Wis.	45.0	SSW	4,970	4	Wichita, Kans.	73.0	WSW	9,170	9	Omaha, Nebr.
South-Central <sup>6</sup>	34.0	SW	2,500	5	Springfield, Ill.	38.4	SW	3,370	26	Oklahoma City, Okla.	64.0	SW	13,255	31	San Antonio, Tex.
Northwest <sup>7</sup>	36.0	WSW	1,900	3	Little Rock, Ark.	37.6	WSW	3,770	10	Butte, Mont.	77.0	N	10,220	2	Great Falls, Mont.
West-Central <sup>8</sup>	33.4	NNW	430	2	Billings, Mont.	51.6	NNE	4,650	2	Reno, Nev.	76.0	WNW	11,450	25	Reno, Nev.
Southwest <sup>9</sup>	29.9	SW	2,460	5	Sacramento, Calif.	40.0	SW	3,200	13	Winslow, Ariz.	71.7	SW	12,320	8	Las Vegas, Nev.
					Las Vegas, Nev.		N	5,000	2	Bakersfield, Calif.					

<sup>1</sup> Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania and Northern Ohio.

<sup>2</sup> Delaware, Maryland, Virginia, West Virginia, Southern Ohio, Kentucky, Eastern Tennessee and North Carolina.

<sup>3</sup> South Carolina, Georgia, Florida, and Alabama.

<sup>4</sup> Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.

<sup>5</sup> Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.

<sup>6</sup> Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and Western Tennessee.

<sup>7</sup> Montana, Idaho, Washington, and Oregon.

<sup>8</sup> Wyoming, Colorado, Utah, Northern Nevada, and Northern California.

<sup>9</sup> Southern California, Southern Nevada, Arizona, New Mexico, and extreme West Texas.

## WEATHER ON THE NORTH ATLANTIC OCEAN

By H. C. HUNTER

**Atmospheric pressure.**—The pressure during October 1941, averaged above normal over large portions of the North Atlantic, especially near the coasts of the South Atlantic States, Cuba, and the Bahamas. On the other hand it averaged below normal near the Maritime Provinces, Newfoundland, and Labrador.

The extremes of pressure noted in vessel reports at hand were 1,036.2 and 991.5 millibars (30.60 and 29.28 inches). The high reading was noted during the forenoon of the 30th, about 50 miles from Montauk Point, in a south-southwest direction. Table 1 shows that the pressure was slightly higher at Halifax, Nova Scotia, that day. The low mark was noted near southeastern Newfoundland during the early afternoon of the 20th. During other portions of the month both Belle Isle and Halifax recorded lower pressures.

In low latitudes readings slightly below 1,000 millibars (29.53 inches) were noted by two vessels near 29° N., 75° W., on the 10th, when within the area affected by a storm of tropical origin. However, this storm, when crossing the Bahama Islands several days earlier, as indicated in an article on page 303 of this REVIEW, resulted in a pressure of 964.4 millibars (28.48 inches) on Cat Island.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, October 1941

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	Millibars	Millibars		Millibars	
Horta, Azores	1,020.0	+0.4	1,031	13	1,009	7
Belle Isle, Newfoundland	1,007.9	-3.3	1,029	30	986	12
Halifax, Nova Scotia	1,014.8	-2.5	1,038	30	989	11
Nantucket	1,018.0	+4	1,036	30	1,000	10
Hatteras	1,020.3	+2.3	1,030	29	1,009	10
Turks Island <sup>1</sup>	1,016.0	+1.8	1,019	18	1,012	16
Key West	1,016.3	+2.4	1,022	14	1,011	6
New Orleans	1,017.3	+4	1,024	4	1,010	2

<sup>1</sup> For 27 days.

NOTE.—All data based on available observations, departures compiled from best available normals related to times of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

**Cyclones and gales.**—The vessel reports available indicate a comparatively quiet October. In middle latitudes two strong gales and several fresh gales occurred. The period centering on the 20th appears to have been the most eventful, and from the 8th to 11th likewise was somewhat unquiet.

The opening week and the period from 22d to 26th seem to have been remarkably undisturbed from the 30th parallel northward.

**Tropical disturbances.**—In another portion of this issue an account is presented of two disturbances of tropical origin. The earlier of these cyclones was noted to northward of the Virgin Islands on the 3d; it moved westward across the Bahamas and extreme southern Florida, turned northward over the Gulf and traversed parts of western Florida, southern Georgia and South Carolina, then moved southeastward over the Atlantic to near latitude 30°, thence continued mainly eastward till beyond the field of observation.

This storm was of comparatively small diameter during much of its course, and was for awhile remarkably intense, especially over the Bahamas. A few lives are reported lost in the Bahamas and some in northwestern Florida. No vessel report that relates to this storm indicates a higher wind than a strong gale (force 9).

The later Low was of short path and little moment. Its track was approximately the middle portion of the track of the earlier storm, and the time was about 13 days later. The greatest wind force noted in vessel reports as a result of this disturbance was a moderate gale (force 7).

**Line squalls.**—About 150 miles to eastward of the extreme southeastern coast of Maryland line squalls were noted from a vessel which furnishes this report:

October 1, 9:30 p. m., 75th meridian time (equivalent to October 2, 2:30 a. m., Greenwich mean time), in latitude 38°04' N., longitude 73°00' W., barometer 30.16 inches (1021.3 millibars), having risen 0.03 inch during 1½ hours preceding, temperature of air 72°, of water 70°; three line squalls, moving southeastward, ranging from about 15 to 20 miles in length, passed at intervals of about 5 to 8 minutes. The clouds appeared in a very compact mass and in an almost straight line. During this time the wind shifted from southwest, Beaufort force 3, to northwest, same force; within the succeeding 3½ hours the wind turned partly back, becoming west, force 2. Other clouds at the time of the squalls were alto-cumulus, about two-tenths of sky being covered, apart from the line squall masses which covered a third of the overhead as they passed. Sea small southwest. Ship's course north-northeast, speed 14 knots.

**Waterspouts near the Equator.**—Approximately 700 miles to northward of Cape St. Roque (in 5°10' N., 33°04' W.), on October 14, about 7:50 a. m., local time, with barometer 1,013.9 millibars (29.94 inches), waterspouts were observed, as reported below:

Wind fitful and light, shifting continuously from north to east to southwest and back. Partly cloudy and light rain squalls. Cloud movements shifty and in various directions.

One mass of clouds, apparently at a lower level than the surrounding cloud formations, drifting from a northeasterly direction, moved into what seemed to be a stationary mass of clouds, almost immediately forming a single spout close enough to our vessel that the boiling motion on the surface of the sea could be observed. As this spout seemed to gain in violence, and as the column darkened, it appeared to move in a northwesterly direction.

Perhaps 5 minutes later the column of the spout began to lighten and fade.

At this time two more spouts formed in the same cloud group further to the southeast. These two columns, one of which was very twisted, seemed to start fading almost as soon as they were well formed. These two lasted perhaps 5 minutes.

The first spout was in formation a little better than 10 minutes when it started fading. The column of the spout seemed to part in the center, the lower half dropping into the sea, and the upper half receding upward into the cloud. Some time after the lower half had dropped into the sea, however, and while the upper half was still fading upward, a motion was still visible on the surface of the sea.

Past weather was with light rain squalls, and the prevailing cloud formation was cumulonimbus.

**Fog.**—There was but little fog reported this month. The square 40° to 45° N., 65° to 70° W., had fog on 3 days, and a very few other ocean areas are indicated as having fog on 1 or 2 days. No fog was reported from any position to eastward of the 55th meridian, or to southward of the 35th parallel.

Even where most fog was noted, near the coasts of eastern New England and of Nova Scotia, the occurrence was apparently less than the normal during the month of October.

### OCEAN GALES AND STORMS, OCTOBER 1941

Vessel	Position at time of lowest barometer		Gale began October	Time of lowest barometer, October	Gale ended, October	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	Latitude	Longitude									
NORTH ATLANTIC OCEAN											
A vessel.....	24 12N.	69 18W.	4	1p, 4.....	4	Milibars 1,007.8	ENE.....	ENE, 7.....	SE.....	SE, 8.....	ENE-E.
Do.....	25 42N.	77 12W.	5	7p, 5.....	5	1,005.3	NE.....	ENE, 8.....	E.....	ENE, 8.....	NE-E.
Do.....	27 36N.	82 42W.	6	4p, 6.....	6	1,005.8	NE.....	SE, 9.....	SE.....	SE, 9.....	NE-SE.
Do.....	37 06N.	69 24W.	8	2p, 8.....	8	1,010.8	W.....	W, 8.....	W, 8.....	W, 8.....	
Do.....	32 10N.	77 30W.	8	5p, 8.....	8	1,002.7	SSW.....	ESE, 9.....	E.....	ESE, 9.....	S-E.
Do.....	38 06N.	58 18W.	9	3a, 9.....	9	1,004.4	SW.....	SW, 9.....	SW.....	SW, 9.....	SW-NNW.
Do.....	29 12N.	74 42W.	10	2p, 10.....	10	999.3	ESE.....	NW, 6.....	E.....	ESE, 8.....	ESE-NNE-W.
Do.....	27 54N.	79 42W.	11	6p, 10.....	11	1,012.9	NE.....	N, 3.....	NE.....	N, 8.....	
Do.....	40 42N.	68 06W.	10	10p, 10.....	11	1,002.7	NW.....	WNW, 7.....	NW.....	NW, 8.....	
Do.....	38 30N.	60 06W.	11	8a, 11.....	11	1,002.0	S.....	SSW, 8.....	W.....	SW, 8.....	SSW-NW.
Do.....	29 00N.	70 00W.	11	8a, 11.....	12	1,003.1	SW.....	SW, 7.....	NNE.....	N, 8.....	SW-W.
Do.....	39 06N.	47 48W.	20	9a, 20.....	21	997.0	SSE.....	SSW, 7.....	NW.....	NW, 8.....	SSE-SSW-NNW.
Do.....	47 30N.	52 40W.	19	1p, 20.....	20	991.5	SSE.....	N, 9.....	N.....	N, 9.....	NNE-N.
Do.....	39 06N.	60 42W.	28	2a, 29.....	29	1,015.9		SSW, 8.....		SSW, 8.....	S-SSW.
NORTH PACIFIC OCEAN											
A vessel.....	42 36N.	169 42E.	1	5p, 30 <sup>1</sup> .....	1	1,019.6	NNW.....	NNW, 6.....	N.....	N, 8.....	
Do.....	38 24N.	124 00W.	1	4p, 1.....	2	1,015.9	NW.....	NW, 7.....	NW.....	NW, 8.....	
Do.....	53 54N.	156 12W.	1	8a, 1.....	2	994.6	SW.....	SW, 6.....	WSW.....	SW, 8.....	S-SW.
Do.....	37 36N.	124 54W.	1	4a, 2.....	2	1,015.6	WNW.....	NW, 8.....	NW.....	NW, 8.....	None.
Do.....	57 30N.	151 00E.	2	3a, 4.....	3	997.0	WNW.....	NW, 5.....	WNW.....	WNW, 8.....	WNW-NW.
Do.....	48 00N.	168 24W.	3	7p, 3.....	4	1,013.2	S.....	S, 7.....	S.....	S, 8.....	
Do.....	49 18N.	132 48W.	8	9a, 9.....	9	999.3	W.....	SW, 7.....	WSW.....	W, 8.....	E-SW-SSW.
Do.....	48 19N.	124 49W.	9	12m, 9.....	9	1,003.4	SE.....	SE, 8.....	SE.....	SE, 8.....	None.
Do.....	30 36N.	149 36E.	10	4a, 11.....	11	1,018.0	N.....	NE, 8.....	NE.....	NE, 8.....	None.
Do.....	24 21N.	156 20E.	10	4a, 12.....	13	993.3	NE.....	NE, 10.....	SE.....	NE, 10.....	
Do.....	31 00N.	154 00E.	12	6a, 13.....	13	1,009.1	ENE.....	ENE, 7.....	ESE.....	ENE, 8.....	ESE-ESE.
Do.....	58 00N.	148 54W.	12	4p, 12.....	13	977.0	NE.....	N, 10.....	SW.....	NNE, 11.....	NNE-NNW.
Do.....	14 00N.	94 06W.	12	4p, 12.....	13	1,008.8	N.....	NNW, 3.....	ENE.....	ENE, 8.....	W-N.
Do.....	32 48N.	158 00E.	12	6p, 14.....	15	1,003.1	NE.....	S, 10.....	SW.....	S, 10.....	SSE-S.
Do.....	51 18N.	138 36W.	14	10p, 14.....	15	985.4	SE.....	SW, 9.....	SW.....	SW, 9.....	SE-W.
Do.....	49 29N.	156 56W.	14	10p, 14.....	15	981.4	SSE.....	SW, 8.....	WSW.....	WSW, 9.....	SW-WSW.
Do.....	54 36N.	135 24W.	15	9p, 15.....	16	997.6	SE.....	SE, 8.....	SE.....	SE, 8.....	
Do.....	47 42N.	151 12W.	15	12p, 15.....	18	975.3	SE.....	SW, 10.....	WNW.....	SW, 10.....	
Do.....	42 05N.	178 00W.	15	3a, 16.....	16	986.8	S.....	SW, 11.....	NNW.....	SW, 11.....	S-WSW.
Do.....	58 36N.	138 00W.	16	9p, 16.....		974.9		E, 8.....		E, 8.....	
Do.....	53 00N.	148 18W.	16	11p, 16.....	18	948.2	SE.....	SSW, 10.....	W.....	SW, 10.....	S-SW.
Do.....	58 06N.	160 54W.	17	7a, 17.....	17	985.1	NW.....	NW, 8.....	NW.....	NW, 8.....	NNW-NNW.
Do.....	51 38N.	138 17W.	15	4p, 17.....	19	988.2	SW.....	SSW, 8.....	WSW.....	S, 9.....	S-SW.
Do.....	56 18N.	145 06W.	16	9a, 17.....	18	957.3	SSE.....	ESE, 8.....	WNW.....	NW, 10.....	SSE-E.
Do.....	43 42N.	133 48W.	17	9a, 17.....	18	1,009.1	W.....	W, 4.....	WNW.....	WNW, 8.....	S-W.
Do.....	54 18N.	155 18W.	19	2a, 19.....	19	986.1		SW, 5.....	NW.....	NW, 9.....	S-W.
Do.....	40 00N.	150 12W.	20	2p, 20.....	20	1,004.4	SSE.....	SSE, 8.....	SSE.....	SSE, 8.....	
Do.....	26 51N.	149 06W.	23	1p, 23.....	23	1,011.2	NW.....	N, 10.....	N.....	N, 10.....	Var.-N.-NNW.
Do.....	33 29N.	158 58E.	24	2a, 25.....	25	1,009.1	N.....	N, 8.....	N.....	N, 9.....	None.
Do.....	40 18N.	138 00W.	24	6a, 25.....	25	*984.4	SW.....	SW, 8.....	SW.....	SW, 8.....	
Do.....	39 30N.	155 12W.	25	4p, 26.....	26	1,005.1	S.....	S, 8.....	SSW.....	S, 9.....	

<sup>1</sup> September.

\* Position approximate.

\* Barometer uncorrected.

### WEATHER ON THE NORTH PACIFIC OCEAN

By WILLIS E. HURD

**Atmospheric pressure.**—Over the greater part of the ocean from which readings are available for October 1941, the mean pressure was practically normal. The region of greatest departure was in the Gulf of Alaska, where considerable cyclonic activity occurred. At Juneau, with a mean barometer of 1,007.1 millibars (29.74 inches), the pressure was 4.4 millibars (.13 inch) below the normal of

the month. The lowest barometer reading reported for October was 948.2 millibars (28.00 inches) read on a ship in the central Gulf of Alaska on the 16th.

There was much anticyclonic activity on the east-central part of the ocean, and the average HIGH extended from the Washington coast southwestward across Midway Island.

In southwestern waters, the island of Guam had an unusually low mean barometer for a tropical station in October. The average was 1,007.2 millibars (29.74